

Appl. No. 10/784,842  
Amdt. Dated 8-Sep-05  
Reply to Office Action of 07/19/2005  
Attorney Docket No. : 6037-006

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently amended)      A An antioxidant composition comprising at least one casein phosphopeptide or fragment thereof, wherein the composition is operable to inhibit oxidation of lipids in an oil-in-water or a water-in-oil emulsions emulsion.
2. (Previously amended)      The composition of Claim 1, further comprising at least one sulfated polysaccharide.
3. (Currently amended)      The sulfated polysaccharide composition of Claim 2, wherein further comprising the sulfated polysaccharide is selected from the group consisting of [[:]] iota-carrageenan, kappa-carrageenan, lambda-carrageenan, chondroitin, heparin, dextran, and cyclodextrins, and combinations thereof.
4. (Original)      The composition of Claim 1, further comprising a medium-chain triglyceride.
5. (Currently amended)      The composition medium-chain triglyceride of Claim 4, further comprising a wherein the medium-chain triglyceride is selected from the group consisting of: caproic (C:6.0), caprylic (C:8.0), and capric (C:10.0) triglycerides, and any combinations thereof.
6. (Currently amended)      The composition of Claim 1, further comprising [[:]]-at least one non-reducing sugar or sugar polyol.
7. (Currently amended)      The composition of Claim 1, ~~further comprising~~ wherein the casein or fragment thereof phosphopeptide is selected from the group consisting of [[:]] alpha-casein, beta-casein, kappa-casein, fragments thereof, and any combinations thereof.

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8. (Currently amended) The composition of Claim 1, wherein the casein or ~~fragment thereof~~ phosphopeptide comprises a caprine casein phosphopeptide or fragment thereof.

9. (Currently amended) ~~The composition of Claim 1, further~~ An antioxidant composition comprising at least one casein fragment, wherein the casein fragment is at least one of a phosphopeptide, a glycopeptide, a glyceride and combinations thereof, in an oil-in-water or a water-in-oil emulsion.

10. (Currently amended) The casein fragment ~~composition~~ of Claim 9, ~~further comprising a phosphopeptide having amounts~~ wherein the casein fragment is characterized by a content of alpha.sub.s2.-casein greater than 15 percent of total casein and medium-chain triglycerides.

11. (Currently amended) ~~The composition~~ phosphopeptide of Claim 10 ~~Claim 9, further comprising~~ wherein the phosphopeptide comprises a caseinophosphopeptide.

12. (Currently amended) The caseinophosphopeptide ~~composition~~ of Claim 11, wherein the caseinophosphopeptide comprises a caprine caseinophosphopeptide.

13. (Canceled)

14. (Currently amended) The composition of Claim 1, further comprising at least one ingredient selected from the group consisting of ~~[[:]]~~ alpha, beta, gamma or delta tocopherols, alpha, beta, gamma or delta tocotrienols, tocopherols, tocotrienols, beta-carotene, phospholipids, chitosan and combinations thereof.

15. (Currently amended) The composition of Claim 1, further comprising at least one phospholipid selected from the group consisting of ~~[[:]]~~ egg yolk phospholipids, soybean phospholipids, and combinations thereof.

16. (Previously amended) The composition of Claim 1, further comprising at least one ingredient selected from the group consisting of pH modifiers, chelating agents, polyphenols, modified starches, glycerides, fruit concentrate sweeteners, cocoa powder,

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sucralose, and oil-soluble flavors, vitamins, nutraceutical actives, and pharmaceutical actives.

17. (Currently amended) The ~~composition~~ pH modifiers of Claim 16, wherein the pH ~~modifier is~~ modifiers are selected from the group consisting of ~~[[:]]~~ citric acid, ascorbic acid, gluconic acid, and combinations thereof.

18. (Currently amended) The ~~chelating agents composition~~ chelating agents of Claim 16, wherein the chelating ~~agent comprises~~ agents comprise citric acid.

19. (Canceled)

20. (Currently amended) The ~~polyphenols composition~~ polyphenols of Claim 16, wherein the polyphenols ~~comprises the~~ polyphenols are derived from the fruit of *Solanum melongena*.

21 - 41 (Canceled)

42. (Currently amended) A product comprising at least one casein phosphopeptide ~~or fragment thereof~~, wherein the ~~composition~~ casein phosphopeptide imparts at least one function selected from the group consisting of inhibiting oxidation of lipids ~~in oil-in-water or water-in-oil emulsions~~, preventing bone mineral loss in a mammal, and preventing hypercholesterolemia in a mammal.

43. (Currently amended) The product of Claim 42, wherein the product is selected from the group consisting of ~~[[:]]~~ cocoa products, hypercholesterolemia preventatives, bone mineral loss preventatives, Omega-3-rich oil products, products having oil-soluble flavors, products having oil-soluble vitamins, nutraceuticals, or pharmaceuticals, protein rich products having reduced protein settling and sedimentation, transparent beverages, products containing vegetable oils including rice bran oil, flax, chia, hemp, castor, soybean, lesquerella, dehydrated castor oil, rich in Omega-3, or conjugated linoleic acid, animal oils including fish, egg, poultry, and beef oils rich in Omega-3, or conjugated linoleic acid, and combinations thereof.

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44. (Currently amended) The emulsion composition of Claim 1, wherein the emulsion thereof comprises either a water-in-oil microemulsion, a water-in-oil nanoemulsion, an oil-in-water microemulsion, or an oil-in-water nanoemulsion thereof.

45. (Canceled)

46. (Canceled)

47. (Currently amended) The casein phosphopeptide composition of Claim ~~21~~ 1, wherein the ~~polycationic complex~~ casein phosphopeptide is selected from the group consisting of comprises a trypsin-digested casein.

48. (Currently amended) The trypsin-digested casein composition of Claim ~~21~~ 47, wherein the trypsin-digested casein is selected from the group consisting of caprine casein characterized by a content of alpha.sub.s2.-casein greater than 15 percent and beta-casein greater than 15 percent of the total casein.

49. (Currently amended) The casein phosphopeptide composition of Claim ~~21~~ 1, wherein the casein phosphopeptide comprises is selected from the group consisting of caprine casein phosphopeptides.

50. (Currently amended) The composition of Claim ~~28~~ 9, wherein the ~~polyphenols comprises polyphenols~~ further comprising a polyphenol selected from the group consisting of *Solanum melongena* polyphenols.

51. (Currently amended) The composition of Claim ~~21~~ 9, further comprising non-reducing sugars and sugar polyols.

52. (Currently amended) The composition of Claim ~~21~~ 9, further comprising pH modifiers wherein the acidic environment ranges from pH 2.0 to 5.7.

53. (Currently amended) The composition of Claim ~~23~~ 9, wherein the further comprising sulfated polysaccharides ~~are~~ selected from the group consisting of carrageenans, chondroitin, heparin, dextran, cyclodextrins and combinations thereof.

54. (Canceled).

55. (Canceled)

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56. (Canceled)

57. (Canceled)

58. (Canceled)

59. (Canceled)

60. (Canceled)

61. (Canceled)

62. (Canceled)

63. (Canceled)

64. (Canceled)

65. (Currently amended) The composition of Claim 9, wherein the glyceride is selected from the group consisting of [[:]] enzymatically modified oils, fats, and fatty acids of mono-, di-, and tri-glycerides; lipolyzed modified oils, fats, and fatty acids of mono-, di-, and tri-glycerides; and combinations thereof.

66. (Currently amended) The composition of Claim 16, wherein the fruit concentrate sweetener comprises [[:]] a blend of hydrolyzed starch having a dextrose equivalent [[(D.E.)]] of up to approximately 25; fruit juice or fruit syrup concentrate of at least approximately 40% soluble solids; and approximately 0% insoluble solids, wherein the starch, juice or concentrate and solids form a liquor having a dry weight composition of approximately 40 to approximately 65% complex carbohydrates, approximately 35 to approximately 55% simple sugars from the fruit juice or fruit syrup concentrate, and approximately 0 to approximately 5% nutritional components occurring naturally in the fruit juice or fruit syrup concentrate.

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-20 (Cancelled)

21 – 41 (Cancelled)

42. (Previously presented) A product comprising at least one casein phosphopeptide, wherein the casein phosphopeptide imparts at least one function selected from the group consisting of inhibiting oxidation of oil-in-water or water-in-oil emulsions, preventing bone mineral loss in a mammal, and preventing hypercholesterolemia in a mammal.

43. (Previously presented) The product of Claim 42, wherein the product is selected from the group consisting of cocoa products, hypercholesterolemia preventatives, bone mineral loss preventatives, Omega-3-rich oil products, products having oil-soluble flavors, products having oil-soluble vitamins, nutraceuticals, or pharmaceuticals, protein rich products having reduced protein settling and sedimentation, transparent beverages, products containing vegetable oils including rice bran oil, flax, chia, hemp, castor, soybean, lesquerella, dehydrated castor oil, rich in Omega-3, or conjugated linoleic acid, animal oils including fish, egg, poultry, and beef oils rich in Omega-3, or conjugated linoleic acid, and combinations thereof.

44. (Currently amended) The emulsion of Claim [1] 67, wherein the emulsion further comprises either a water-in-oil microemulsion, a water-in-oil nanoemulsion, an oil-in-water microemulsion, or an oil-in-water nanoemulsion thereof.

45-46: Cancelled.

47. (Currently amended) The casein phosphopeptide of Claim [1] 67, wherein the casein phosphopeptide comprises a trypsin-digested casein.

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48. (Previously presented) The trypsin-digested casein of Claim 47, wherein the trypsin-digested casein is selected from the group consisting of caprine casein characterized by a content of alpha.sub.s2.-casein greater than 15 percent and beta-casein greater than 15 percent of the total casein.

49. (Currently amended) The casein phosphopeptide of Claim [1] 67, wherein the casein phosphopeptide comprises caprine casein phosphopeptides.

50. (Currently amended) The composition of Claim [9] 75, further comprising a polyphenol selected from the group consisting of *Solanum melongena* polyphenols.

51. (Currently amended) The composition of Claim [9] 75, further comprising non-reducing sugars and sugar polyols.

52. (Currently amended) The composition of Claim [9] 75, further comprising pH modifiers wherein the acidic environment ranges from pH 2.0 to 5.7.

53. (Currently amended) The composition of Claim [9] 75, further comprising sulfated polysaccharides are selected from the group consisting of carrageenans, chondroitin, heparin, dextran, cyclodextrins and combinations thereof.

54-64: Cancelled.

65. (Currently amended) The composition of Claim [9] 75, wherein the glyceride is selected from the group consisting of enzymatically modified oils, fats, and fatty acids of mono-, di-, and tri-glycerides; lipolyzed modified oils, fats, and fatty acids of mono-, di-, and tri-glycerides; and combinations thereof.

66. (Currently amended) The composition of Claim [16] 81, wherein the fruit concentrate sweetener comprises a blend of hydrolyzed starch having a dextrose equivalent of up to approximately 25; fruit juice or fruit syrup concentrate of at least approximately 40% soluble solids; and approximately 0% insoluble solids, wherein the starch, juice or concentrate and solids form a liquor having a dry weight composition of approximately 40 to approximately 65% complex carbohydrates, approximately 35 to approximately 55% simple sugars from the fruit juice or fruit syrup concentrate, and

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approximately 0 to approximately 5% nutritional components occurring naturally in the fruit juice or fruit syrup concentrate.

67. (New) An antioxidant composition comprising casein phosphopeptide or a fragment thereof, wherein the composition is operable to inhibit oxidation of lipids in emulsion.

68. (New) The composition of Claim 67, further comprising at least one sulfated polysaccharide.

69. (New) The sulfated polysaccharide of Claim 68, wherein the sulfated polysaccharide selected from the group consisting of iota-carrageenan, kappa-carrageenan, lambda-carrageenan, chondroitin, heparin, dextran, and cyclodextrins, and combinations thereof.

70. (New) The composition of Claim 67, further comprising a medium-chain triglyceride.

71. (New) The medium-chain triglyceride of Claim 70, wherein the medium-chain triglyceride is selected from the group consisting of: caproic (C:6.0), caprylic (C:8.0), and capric (C:10.0) triglycerides, and any combinations thereof.

72. (New) The composition of Claim 67, further comprising at least one non-reducing sugar or sugar polyol.

73. (New) The composition of Claim 67, wherein the casein phosphopeptide is selected from the group consisting of alpha-casein, beta-casein, kappa-casein, fragments thereof, and any combinations thereof.

74. (New) The composition of Claim 67, wherein the casein phosphopeptide comprises a caprine casein phosphopeptide.

75. (New) An antioxidant composition comprising at least one casein fragment, wherein the casein fragment is at least one of a phosphopeptide, a glycopeptide, a glyceride and combinations thereof, operable to inhibit lipid oxidation.



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76. (New) The casein fragment of Claim 75, wherein the casein fragment is characterized by a content of  $\alpha$ -sub.s2.-casein greater than 15 percent of total casein and medium-chain triglycerides.

77. (New) The phosphopeptide of Claim 75, wherein the phosphopeptide comprises a caseinophosphopeptide.

78. (New) The caseinophosphopeptide of Claim 77, wherein the caseinophosphopeptide comprises a caprine caseinophosphopeptide.

79. (New) The composition of Claim 67, further comprising at least one ingredient selected from the group consisting of  $\alpha$ ,  $\beta$ ,  $\gamma$  or  $\delta$  tocopherols,  $\alpha$ ,  $\beta$ ,  $\gamma$  or  $\delta$  tocotrienols, tocopherols, tocotrienols,  $\beta$ -carotene, phospholipids, chitosan and combinations thereof.

80. (New) The composition of Claim 67, further comprising at least one phospholipid selected from the group consisting of egg yolk phospholipids, soybean phospholipids, and combinations thereof.

81. (New) The composition of Claim 67, further comprising at least one ingredient selected from the group consisting of pH modifiers, chelating agents, polyphenols, modified starches, glycerides, fruit concentrate sweeteners, cocoa powder, sucralose, and oil-soluble flavors, vitamins, nutraceutical actives, and pharmaceutical actives.

82. (New) The pH modifiers of Claim 81, wherein the pH modifiers are selected from the group consisting of citric acid, ascorbic acid, gluconic acid, and combinations thereof.

83. (New) The chelating agents of Claim 81, wherein the chelating agents comprise citric acid.

84. (New) The polyphenols of Claim 81, wherein the polyphenols are derived from the fruit of *Solanum melongena*.

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85. (New) The composition of Claim 75, further comprising at least one ingredient selected from the group consisting of alpha, beta, gamma or delta tocopherols, alpha, beta, gamma or delta tocotrienols, tocopherols, tocotrienols, beta-carotene, phospholipids, chitosan and combinations thereof.

86. (New) The composition of Claim 75, further comprising at least one phospholipid selected from the group consisting of egg yolk phospholipids, soybean phospholipids, and combinations thereof.

87. (New) The composition of Claim 75, further comprising at least one ingredient selected from the group consisting of pH modifiers, chelating agents, polyphenols, modified starches, glycerides, fruit concentrate sweeteners, cocoa powder, sucralose, and oil-soluble flavors, vitamins, nutraceutical actives, and pharmaceutical actives.